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ABSTRACT

Researchers as well as others evaluating teachers or programs are often interested in the verbal and non-verbal behaviors related to the learning of students in classrooms. The Student Record of Behavior (StRoBe) is a classroom observation instrument designed to provide simple low inference information concerning student behaviors related to engagement in learning. The StRoBe protocol grid indicates the physical location of the students in the classroom, and data are recorded for one student approximately every 10 seconds. This allows a great deal of data to be collected for a large number of students in a short amount of time. The instrument is most useful with traditional classroom lessons or other classroom activities that require students to remain relatively fixed in their seats or in one place. With repeated observations, data can be collected that allow for classroom, teacher, and student comparisons based on: (1) verbal and non-verbal behavior; (2) appropriate and inappropriate behavior; and (3) interactions. These comparisons can serve as the basis for research and evaluation. The simplicity of the StRoBe and the limited number of entry choices provide a measure that has high interrater reliability. Definitions of variables, steps for variable assignment, one table, and two StRoBe protocols are provided. (Author/SLD)

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StRoBe: A Classroom-On-Task Measure

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ABSTRACT

StRoBe: A Classroom-On-Task Measure

Researchers as well as others evaluating teachers or programs are often interested in the verbal and nonverbal behaviors related to the learning of students in classrooms. The Student Record of Behavior (StRoBe) is a classroom observation instrument designed to provide simple low inference information concerning student behaviors related to engagement in learning. The StRoBe protocol grid indicates the physical location of the students in the classroom, and data is recorded for one student approximately every ten seconds. This allows for a great deal of data to be collected for a large number of students in a short amount of time. With repeated observations, data can be collected that allows for classroom and student comparisons based on: verbal and nonverbal behavior, appropriate and inappropriate behavior, and interactions. These comparisons can serve as the basis for research and evaluation.

StRoBe: A Classroom-On-Task Measure

A number of observational instruments have been developed to record verbal and non-verbal events in school classrooms (see Simon & Boyer, 1974 for an early review). Many of these instruments involve complex protocols that are intended to provided detailed information concerning a number of events and interactions. The Student Record of Behavior (StRoBe) was designed to provide simple low inference information concerning student behaviors related to engagement in learning. The instrument was developed out of a need to collect a large amount of data concerning student on-task behavior in a limited amount of time.

Instrument Design

The StRoBe was developed to provide very limited types of information on relatively large groups of students. It is not designed to provide information concerning teacher behaviors, nor is it the most appropriate instrument for gathering a great variety of specific information on an individual student. The StRoBe protocol is a grid that indicates the physical location of the students in the classroom. Therefore, the StRoBe is not conducive to activities that involve a great deal of student movement around the classroom. The instrument is most useful with traditional classroom

lessons and seatwork or other classroom activities that require the students to remain relatively fixed in their seats or in one place.

The five by seven cell grid is the worksheet for collecting classroom student data. Protocols can be connected and empty desks and space can be crossed out in order to replicate the physical arrangement of the classroom. The students' names or coded numbers can be entered before or after data is recorded. The observer should make a brief statement concerning the nature of the classroom activity and record the time prior to data collection. In each cell there are ten subcells to record data. The observer records one of the following choices for each student:

VA = Verbal appropriate behavior (such as asking or answering a question)

VI = Verbal inappropriate behavior (such as talking about subjects not related to classroom learning activities)

VU = Verbal undefined behavior (verbal behavior that is difficult to determine its nature or appropriateness)

BA = Behavior appropriate (such as appropriate hand raising, writing, or working behaviors)

BI = Behavior inappropriate (involvement in activities not related to classroom learning, such as throwing or engaging in behaviors usually exclusive to listening or working)

BU = Behavior undefined (behavior that is difficult to

determine its nature, such as staring into space) If the student is engaged in a verbal activity, one of the verbal choices is selected. If the student is not engaged in verbal activity then a behavioral choice is indicated.

After recording information for a student, the observer moves to the student in the next physical location. The observer continues to record data on each student in the classroom until information has been collected for all of the students. The observer then returns to the first student and begins again. The observer must follow the same pattern that was used for the initial recording, and should maintain a consistent observation time for each student. Most observers have little difficulty observing and recording information on a student in ten seconds. Experienced observers may spend as little as five seconds on each student. Using the 10 second average, an observer could easily collect 250 observations in about 41 minutes in a classroom of 25 students.

Validity

Although behaviors do not necessarily represent cognitions, observational instruments have been established as valid means of representing the observable behaviors. The fact that a student raises his hand does not mean that he knows the answer, or even that he heard the question. The fact that a student is observed in the act of writing does not necessarily reflect that he is thinking. However, it is not unusually for

researchers as well as others evaluating teachers or programs to be interested in verbal and non-verbal behaviors that might indicated involvement in learning. Consistent support for the validity of this type of molar measure has been demonstrated (Hoge, 1985).

Reliability

The StRoBe was tested for inter-rater reliability in a variety of classroom formats. Small group work, whole class lessons, and independent seatwork were observed and recorded. The inter-rater reliability was .88 across the settings. Most of the discrepancies in scoring involved the behavior appropriate and behavior undefined classifications during small and whole group lessons. These discrepancies could have been minimized by a more specific definition of what would constitute appropriate behavior when the student is not directly involved in the lesson. Other discrepancies occurred when the students were involved in small group work and the observers were not in adequate proximity to determine which student was speaking. This situation would be remedied by better positioning of observers.

An Example

In order to better understand the procedures and uses of the StRoBe and its results an example is presented. Fictitious

names were given to a class of 20 fourth grade students. The teacher in this class was lecturing at the front of the classroom, presenting examples and asking and answering questions regarding subject and verb agreement. Table 1 presents a brief description of the student's activities. Figure 1 displays the resulting StRoBe protocol.

Insert Table 1 and Figure 1

about here

It should be noted that numerous classroom observations would be necessary to establish a reliable record of student behavior. These observations should occur at various times, during different subject matter, and in different classroom orientations (lecture, small group, independent work, etc.). The author recommends a minimum of four complete observation sessions (completing 10 cells per student per session).

Individual Data

Over time data can be collected on individual students in order to describe his or her on-task behavior. For example, Goofy exhibited appropriate behavior only 30 percent of the time based on the single observation, whereas Fred exhibited appropriate behavior 80 percent of the observations. The codings of individual students can be evaluated to determine

the amount of verbal and nonverbal behavior. They can be further evaluated to determine the amount of appropriate and inappropriate verbal behavior. For example, both Betty and Donald were verbal 30 percent of the observations, however Betty's verbal behaviors were all appropriate whereas Donald's were all inappropriate. This type of information can provide insight into a student's learning and help teachers make decisions concerning teaching strategies. For instance, if a student exhibits a great deal of appropriate verbal behavior and inappropriate nonverbal behavior, the student may be best served by an environment that provides a great deal of appropriate verbal opportunities or well structured nonverbal behavior.

Intra-Classroom Data

A number of comparisons can be made by evaluating the data from within a classroom. The physical arrangement of a classroom can be considered by grouping individuals based on their location. Using the example the rows can be compared for appropriate behavior: Row 1 was observed exhibiting appropriate behavior 90 percent of the time, Row 2 - 74 percent of the time, Row 3 - 66 percent, and Row 4 - 44 percent. Other groupings might also be useful for comparisons, and this information can be helpful in determining seating charts and room arrangements. Observations can also be made during different subjects and at

different times during the school day. Evaluation of this type of data can provide information that can assist in scheduling subjects and analyzing teaching approaches for various subjects.

Inter-Classroom Data

Comparisons can also be made across classrooms. With numerous observations teachers and teaching behaviors can be compared using the dimensions of verbal versus nonverbal behavior and appropriateness of behavior. Evaluation of this data can be useful in determining inservice needs for the school as well as providing comparative data for individual formative or summative teacher evaluations.

Summary

The simplicity of the StRoBe and the limited number of entry choices provides a relatively low-inference measure with high inter-rater reliability. With repeated observations, data can be collected that allows for classroom, student, and teacher comparisons based on: verbal and nonverbal activity, appropriate and inappropriate activity, and interactions. These comparisons can serve as the basis for research and evaluation.

References

Hoge, R. D. (1985). The validity of direct observation measures of pupil behavior. Review of Educational Research, 55, 469-483.

Simon, A., & Boyer, E. G. (1974). Mirrors for behavior III: An anthology of observation instruments. Communication Materials Center, Temple University: Philadelphia.

Author Notes

For permission to reproduce the attached StRoBe protocol for research purposes at no charge please contact the author. If there are any questions or for permission for reproduction for profit or for the purpose of decision making regarding school personnel please contact the author.

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Appendix A

Definition of Variables

Verbal Appropriate = VA

Asking a question related to learning activities

Answering a question related to learning activities

Making a comment related to learning activities

Note: Student's verbal behavior does not necessarily need to be directed to the teacher to be considered appropriate. It can be to another student if the context dictates that to be appropriate (ie. group work).

Verbal Inappropriate = VI

Asking a question not related to learning activities

Making comments irrelevant to learning activities ("I don't know" is an appropriate answer to a question; additional negative comments are not)

Verbal Undefined = VU

Any verbal behavior that is not clearly appropriate or inappropriate

Behavior Appropriate = BA

Writing when working on a written task

Gazing at reading materials or turning page when working on a reading task

Boardwork, etc. as appropriate

Behavior Inappropriate = BI

Throwing objects

Working with or playing with materials not appropriate to task

Behavior Undefined = BU

Any behavior that is not clearly appropriate or inappropriate, such as staring into space as if thinking.

Writing, when it is clear that the student is not on the task at hand.

Appendix B

Steps for Variable Assignment

1. Is the student exhibiting any type of verbal behavior?
   A. If yes, you will use a verbal (V) response.
   B. If no, you will use a behavior (B) response.

2. Is student's verbal behavior appropriate to the learning activity?
   A. If yes, you will use verbal appropriate (VA).
   B. If no, you will use verbal inappropriate (VI).
   C. If you are not sure, you use verbal undefined (VU).

3. If the student is not exhibiting any type of verbal behavior, what type of non-verbal behavior is the student exhibiting?
   Does the student appear to be on-task?
   A. If yes, you will use behavior appropriate (BA).
   B. If no, you will use behavior inappropriate (BI).
   C. If you are not sure, you use behavior undefined (BU).

Table 1

Student behavior for first two cells of StRoBe.

First pass-first cell (10 seconds per observation)

Fred	looking at the teacher lecturing (BA)
Wilma	looking at the teacher lecturing (BA)
Barney	looking at the teacher lecturing (BA)
Betty	looking at teacher ask a question (BA)
Pebbles	answers the teacher's question (VA)
Bam-Bam	looking out window (BI)
Dino	looking at the teacher lecturing (BA)
Woody	looking at the clock (BI)
Tom	looking at teacher answer a question (BA)
Jerry	looking at the teacher lecturing (BA)
Waldo	staring at his own desk (BU)
Ernie	looking at the teacher lecturing (BA)
Bert	looking at the teacher lecturing (BA)
Bird	asks teacher an appropriate question (VA)
Grover	writing a note (BI)
Snuffy	looking at the teacher lecturing (BA)
Oscar	head is down resting or sleeping (BI)
Mickey	talking to another student (VI)
Donald	watching other students talk (BI)
Goofy	talking to another student (VI)

Second pass-second cell (10 seconds per observation)

Fred	looking at the teacher lecturing (BA)
Wilma	looking at the teacher lecturing (BA)
Barney	looking at teacher ask a question (BA)
Betty	answers the teacher's question (VA)
Pebbles	looking at the teacher respond (BA)
Bam-Bam	playing with something on his desk (BI)
Dino	looking at the teacher lecturing (BA)
Woody	looking at the teacher lecturing (BA)
Tom	looking at teacher ask a question (BA)
Jerry	answers the teacher's question (VA)
Waldo	looking at the student answering (BA)
Ernie	looking at the teacher lecturing (BA)
Bert	looking at the teacher lecturing (BA)
Bird	looking at the teacher lecturing (BA)
Grover	asking student inappropriate question (VI)
Snuffy	looking at the teacher lecturing (BA)
Oscar	looking around the classroom (BI)
Mickey	looking at the teacher lecturing (BA)
Donald	looking at the teacher lecturing (BA)
Goofy	looking at sleeping student (BI)

Figure Captions

Figure 1. Sample StRoBe protocol for example.

Figure 2. Blank StRoBe protocol for limited reproduction (see Author Notes).

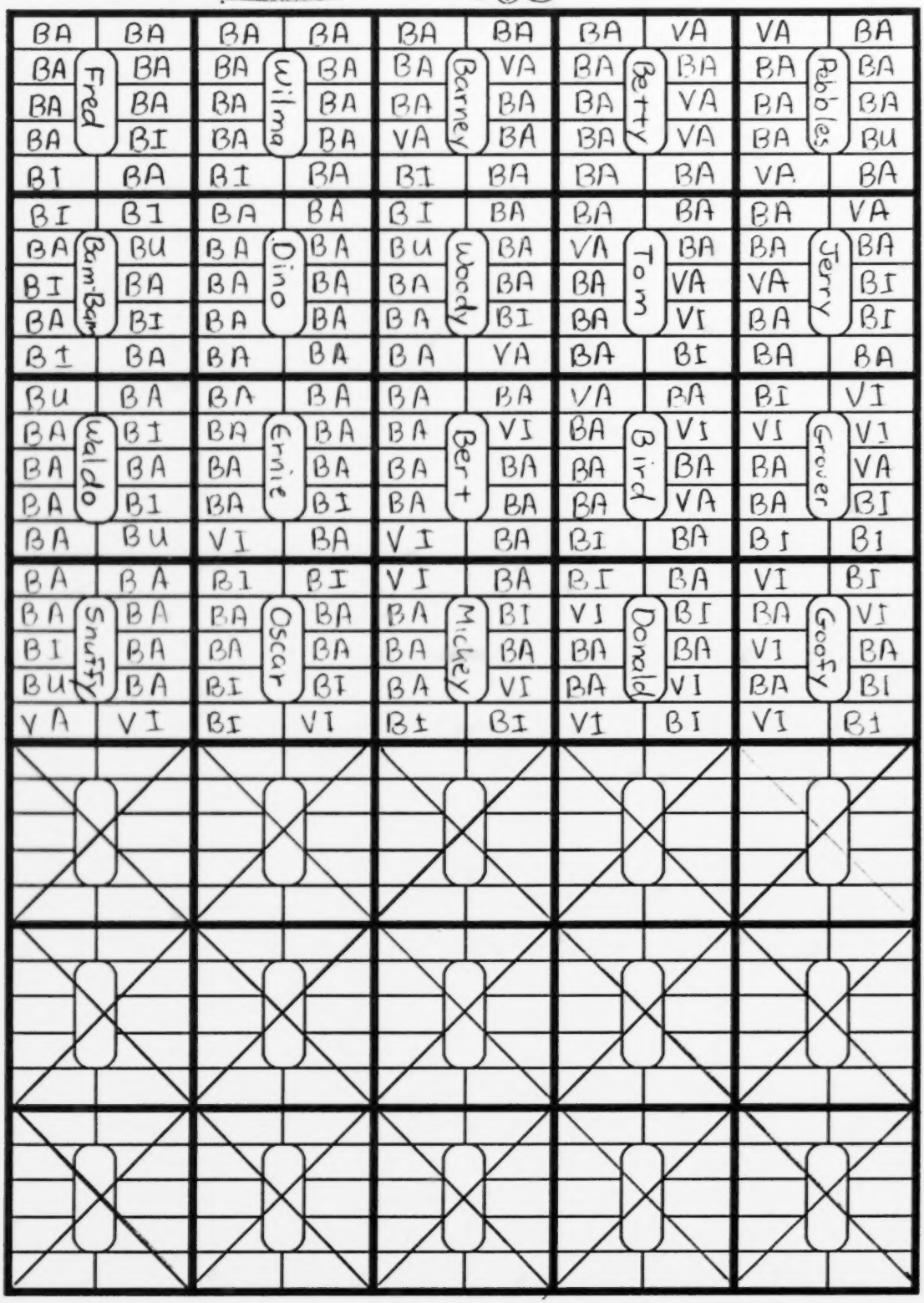
(8) Board — Teacher (5) (10)

(2) Verbal = VA - VI - VU

(1) (3) (4) (6) (9) Behavior = BA - BI - BU

(7) Door

Windows



StRoBe ©

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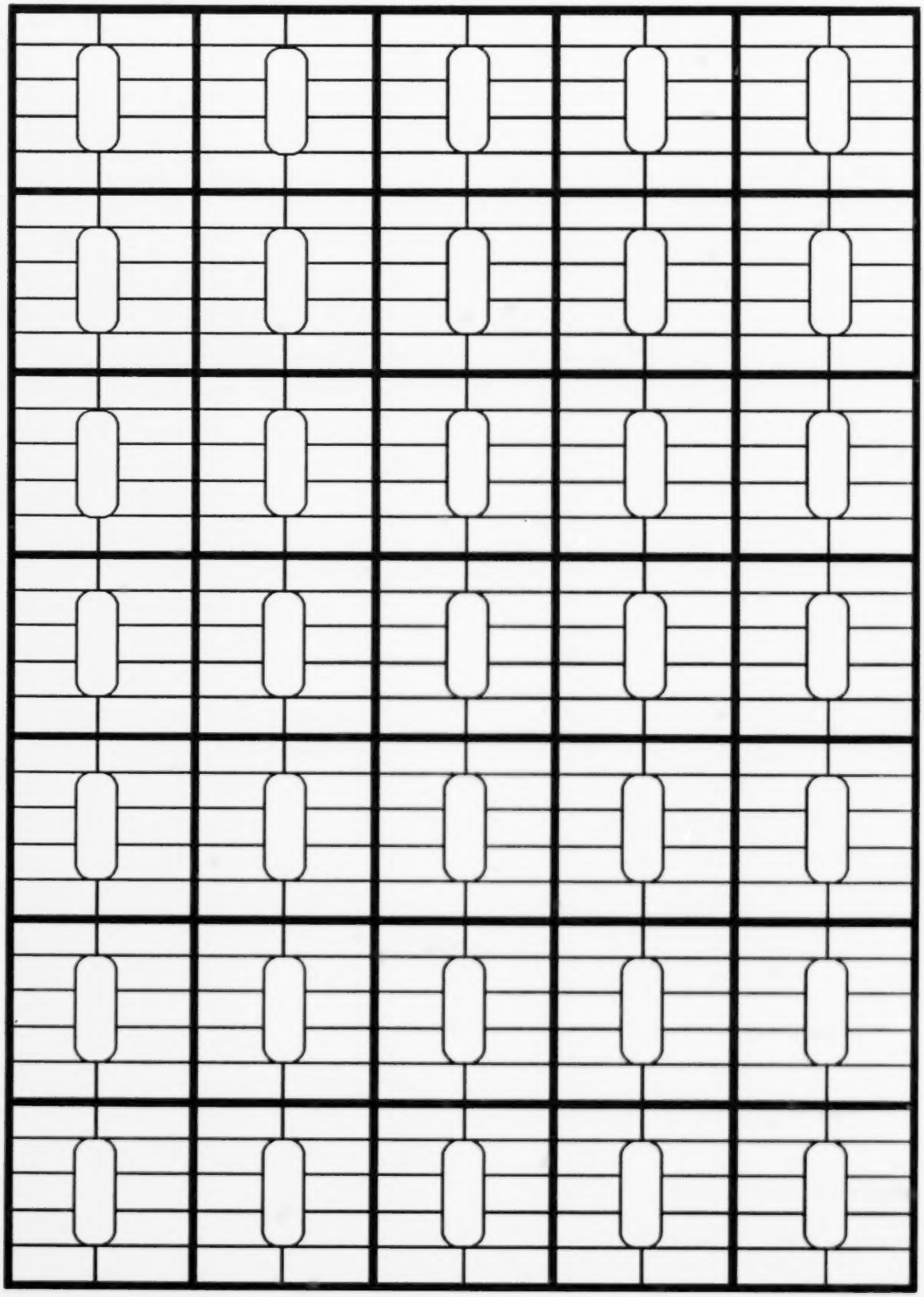
Verbal = VA - VI - VU Behavior = BA - BI - BU



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